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REMARKS

Claims 1-18 were in issue. By this amendment, Claims 1, 6-9, 12, 14, 15, and 17 have been amended, and Claim 18 has been canceled without prejudice. Therefore, Claims 1-17 are presently in issue and are in condition for allowance.

Rejections Under §112, second paragraph

The Examiner has rejected Claim 1 under 35 USC §112, second paragraph stating that the term “subminiature” is “vague”. Applicants have amended the claims to delete the offending term in order to more clearly define the invention.

Applicants appreciate the Examiner's diligence in pointing out that in Claim 2, “mount” may be a typographical error. However, Applicants note that a “surface mount connector” is an accepted term in the art.

Claims 3, 4, and 6 have been reprinted in this amendment, Applicants respectfully traverse the Examiner's rejection based upon the spacing of the words in the originally presented Claims 3, 4, and 6. Applicants apologize for the fact that upon performing a “full justification”, Applicant's word processor tends to be too aggressive.

Claims reciting a “flowcell” have been amended to recite instead a --flow channel-- for which an antecedent basis is provided in Claim 1 in order to more clearly define the invention.

Claims 9, 15, and 17 have each been amended as suggested by the Examiner in order to more clearly define the invention.

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Rejections Under § 102

The Examiner has rejected Claims 1-3, 6, 11, 12, and 18 under 35 USC §102(b) as being anticipated by Betts. Applicants respectfully traverse the Examiner's rejection with respect to Claim 1, and those claims which depend therefrom for the following reasons. Claim 18 has been canceled without prejudice.

The Examiner contends that Betts, et al. discloses conductors on the other side of the substrate each connected to one of the electrodes by a laser induced subminiature hole filled with conductive material. Claim 1 has been amended to recite that the thru-hole is *disposed directly under an associated sensor*. In contrast, Betts discloses use of a "extensions" of a patterned metallic layer 113. In one case, an extension 117 ends in an electrode 115, as stated at cl. 19, line 48-50. Other extensions end in electrodes as well. However, Betts neither teaches nor suggests a thru-hole disposed directly under a sensor, as recited in Claim 1 as amended herein. Furthermore, none of the references cited by the Examiner suggest or provide motivation for modifying Betts to provide such thru-holes under the sensors. Accordingly, Applicants respectfully traverse the Examiner's rejection of Claim 1 and each of the claims which depend therefrom.

Rejections Under §103

The Examiner has rejected Claims 1-3, 6, 11, and 12 under 35 USC §103 as being unpatentable over Betts in view of Schwartz, et al. Applicants traverse the Examiner's rejection of Claims 1-3, 6, 11, and 12 for the reasons stated above with respect to the Examiner's rejection of Claim 1. That is, neither Betts nor Schwartz suggest nor motivate one skilled in the art to provide

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a thru-hole *directly under* the sensors.

The Examiner has rejected Claims 7-10, and 13 under 35 USC §103 as being unpatentable over Betts “with or without” Schwartz, et al.. Applicants respectfully traverse the Examiner’s rejection of Claims 7-10, and 13 for the reasons stated above. That is, Schwartz neither teaches nor suggests a thru-hole *directly under* the sensors. Furthermore, there is no suggestion or motivation to provide in any of the references cited by the Examiner to provide such a thru-hole *directly under* the sensor.

Applicants respectfully traverse the Examiner's rejection of Claims 4, and 5 as being unpatentable over Betts in view of Schwartz and Grubb in light of the fact that none of the references cited teach or suggest a thru-hole *directly under* the sensors. Furthermore, there is no suggestion or motivation to provide in any of the reference cited by the Examiner to provide such a thru-hole *directly under* the sensor.

Likewise, Applicants respectfully traverse the Examiner's rejection of Claims 14-18 as being unpatentable over Betts in view of Schwartz and Buzzo, or Pace and Kuhn, et al, or Kanno, in light of the fact that none of the references cited teach or suggest a thru-hole *directly under* the sensors. Furthermore, there is no suggestion or motivation to provide in any of the reference cited by the Examiner to provide such a thru-hole *directly under* the sensor.

With regard to the Examiner's obviousness-type double patenting rejections, Applicants point out that each of the cited references are assigned to the same entity. Accordingly, a terminal disclaimer will, upon notice that the presented claims are in condition for allowance, be provided

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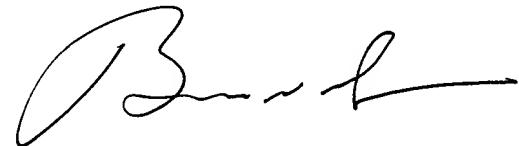
which disclaims any portion of the patent term which extends beyond the term of the cited reference patents.

Applicant wishes to point out the existence of copending U.S. patent application Ser. No. 08/648,694, entitled "METHOD AND APPARATUS FOR DRILLING SUBMINIATURE THROUGH HOLES IN A SENSOR SUBSTRATE", and assigned to the same entity as the present application.

It is believed that this application is now in condition for allowance and reconsideration is earnestly solicited.

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Respectfully submitted,



By: Bruce W. Greenhaus  
Attorney for Applicant  
Registration No. 37,339

BAKER, MAXHAM, JESTER & MEADOR  
Symphony Towers  
750 "B" Street, Suite 3100  
San Diego, California 92101

Telephone: (619) 233-9004